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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,097

Applicant(s)

PEETERS ET AL.

Examiner

Alicia Baturay

Art Unit

2446

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-34 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-34 are presented for examination.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because those submitted on 30 March 2004 appear to contain handwritten numbers. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.
3. The drawings are objected to because Figs. 1 and 3 contain unlabeled elements that should be provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of

the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: on page 3, line 18; page 5, line 9; page 8, line 34; the word "initialising" is spelled "initializing" in the United States. These corrections are exemplary and further corrections within the specification are required.
5. The disclosure is objected to because of the following informalities: on page 4, line 13; page 10, line 36; page 19, lines 16 and 18, the word "re-initialised" is spelled "re-initialized" in the United States. These corrections are exemplary and further corrections within the specification are required.
6. The disclosure is objected to because of the following informalities: on page 8, line 22, the word "prioritised" is spelled "prioritized" in the United States. These corrections are exemplary and further corrections within the specification are required.

7. The disclosure is objected to because of the following informalities: on page 11, line 2, the word “re-initialisation” is spelled “re-initialization” in the United States. These corrections are exemplary and further corrections within the specification are required. The disclosure is objected to because of the following informalities: on page 16, line 24; page 19, line 20, the word “initialised” is spelled “initialized” in the United States. These corrections are exemplary and further corrections within the specification are required.
8. The disclosure is objected to because of the following informalities: on page 17, lines 10; page 19, lines 4, 15, 19 and 21; page 20, lines 19, 20 and 23, the word “initialisation” is spelled “initialization” in the United States. These corrections are exemplary and further corrections within the specification are required.

Claim Objections

9. Claims 11 and 30 is objected to because of the following informalities: the word “initialising” is spelled “initializing” in the United States. Appropriate correction is required.
10. Claims 21 and 34 is objected to because of the following informalities: the word “re-initialised” is spelled “re-initialized” in the United States. Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Regarding claim 10, the phrase "substantially the same priority" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
13. Regarding claim 18, the phrase "arbitrary parameters" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1, 2, 4, 5, 7-11, 22-25 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller et al. (U.S. 6,650,658) and further in view of Johnson et al. (U.S. 6,535,504).

Mueller teaches the invention substantially as claimed including a system and method for a handshake protocol for digital subscriber line (DSL) and similar telecommunication systems that makes beneficial use of aliasing to select and decode signaling tones. In particular, the invention carefully selects signaling tones at frequencies such that higher

frequency tones would alias down and coincide with specific base tones after sub-sampling. Thus, rather than filtering out higher frequencies to avoid aliasing, aliasing is exploited to use these higher frequencies. This technique would allow a receiver to detect and decode the higher frequency tones at lower frequency tone locations or bands. A related innovation is a band set, which includes one or more tones within a particular frequency band, where typically each tone in a band set corresponds to a different tone set. Exploiting the effects of aliasing eliminates the need to search for compatible spectrum, simplifies receiver design, provides flexibility, scalability and future-proofing, and allows handshaking sessions to be established across mutually exclusive spectrums. The invention is particularly useful for DSL systems, and in particular is well suited for the proposed G.hs standard (see Abstract).

16. With respect to claims 1 and 24, Mueller teaches a method for selecting a mode of operation for at least two modems that communicate via a communications network, the method comprising: (a) performing a handshake procedure in order to determine a set of possible modes of operation supported by the modems (Mueller, col. 2, lines 23-25).

Mueller does not explicitly teach selecting from a number of favorable modes of operation.

However, Johnson teaches (b) deriving, from the set of possible modes of operation, a set of favorable modes of operation (Johnson, col. 5, lines 4-17); and, (c) in case there exist two or more favorable modes of operation, performing a probing-based selection that comprises evaluating respective performances of said favorable modes of operation and selecting the

favorable mode of operation with the best performance as a resultant mode of operation (Johnson, col. 5, lines 18-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mueller in view of Johnson in order to enable selecting from a number of favorable modes of operation. One would be motivated to do so in order to provide a communication path selection method which is more dynamic and adaptive to changing needs and conditions.

17. With respect to claims 2 and 25, the combination of Mueller and Johnson teaches the invention described in claims 1 and 24, including the method in which the protocol standards supported by said modems comprise xDSL standards, with at least one of the protocol standards being selected from the group consisting of G.992.1, G.992.2, G.992.3, G.992.4, G.992.5 (Mueller, col. 1, lines 16-35).
18. With respect to claims 4 and 27, the combination of Mueller and Johnson teaches the invention described in claim 1 and 24, including the method in which said set of favorable modes of operation is derived from said set of possible modes of operation by performing a priority-based selection (Johnson, col. 5, lines 4-17).
19. With respect to claims 5 and 28, the combination of Mueller and Johnson teaches the invention described in claims 4 and 27, including the method in which said priority-based selection comprises a first level of priority-based selection, whereby from the possible modes

of operation, a first set of favorable modes of operation is selected based on priorities assigned to different classes of upstream tone usage (Mueller, col. 5, lines 44-48).

20. With respect to claim 7, the combination of Mueller and Johnson teaches the invention described in claim 5, including the method in which one or more of said different classes of upstream tone usage are excluded from said priority-based selection (Mueller, col. 2, lines 4-7).
21. With respect to claims 8 and 29, the combination of Mueller and Johnson teaches the invention described in claims 5 and 28, including the method in which said priority-based selection comprises a second level of priority-based selection, whereby, from the first set of favorable modes of operation, a second set of favorable modes of operation is selected based on priorities assigned to various protocol standards (Johnson, col. 5, lines 18-35).
22. With respect to claim 9, the combination of Mueller and Johnson teaches the invention described in claim 8, including the method in which said various protocol standards are prioritized in a descending order of priority (Gerszberg, col. 20, lines 13-16), at least one of the protocol standards being G.992.5, G.992.4, G.992.3, G.992.1, G.992.2, and non-ITU standards (Mueller, col. 1, lines 16-35).
23. With respect to claim 10, the combination of Mueller and Johnson teaches the invention described in claim 9, including the method in which substantially the same priority

(Gerszberg, col. 20, lines 13-16) is assigned to the protocol standards G.992.3, G.992.4, and G.992.5 (Mueller, col. 1, lines 16-35).

24. With respect to claims 11 and 30, the combination of Mueller and Johnson teaches the invention described in claims 1 and 24, including the method in which said probing-based selection comprises initializing said modems to a probing mode of operation (Mueller, col. 2, lines 23-25).
25. With respect to claim 22, the combination of Mueller and Johnson teaches the invention described in claim 4, including the method in which said priority-based selection is optionally disabled (Mueller, col. 3, lines 50-51).
26. With respect to claim 23, the combination of Mueller and Johnson teaches the invention described in claim 1, including the method in which said probing-based selection is optionally disabled (Mueller, col. 2, lines 25-30).
27. Claims 3, 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller in view of Johnson and further in view of ITU-T Recommendation G.992.3.
28. With respect to claim 3, Mueller teaches the invention described in claim 2, including a method for selecting a mode of operation for at least two modems that communicate via a

communications network, the method comprising: (a) performing a handshake procedure in order to determine a set of possible modes of operation supported by the modems (Mueller, col. 2, lines 23-25).

Mueller does not explicitly teach selecting from a number of favorable modes of operation.

However, Johnson teaches (b) deriving, from the set of possible modes of operation, a set of favorable modes of operation (Johnson, col. 5, lines 4-17); and, (c) in case there exist two or more favorable modes of operation, performing a probing-based selection that comprises evaluating respective performances of said favorable modes of operation and selecting the favorable mode of operation with the best performance as a resultant mode of operation (Johnson, col. 5, lines 18-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mueller in view of Johnson in order to enable selecting from a number of favorable modes of operation. One would be motivated to do so in order to provide a communication path selection method which is more dynamic and adaptive to changing needs and conditions.

The combination of Mueller and Johnson does not explicitly teach annexes of xDSL standards.

However, ITU-T Recommendation G.992.3 teaches the method in which one or more of the possible modes of operation are related to particular annexes of said xDSL standards (ITU-T Recommendation G.992.3, page 195).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Mueller and Johnson in view of ITU-T Recommendation G.992.3 in order to enable the use of annexes of xDSL standards. One would be motivated to do so in order to provide, by negotiation during initialization, for U-interface compatibility and interoperability between transceivers complying with this Recommendation and between transceivers that include different combinations of options.

29. With respect to claim 6, the combination of Mueller, Johnson and ITU-T Recommendation G.992.3 teaches the invention described in claim 5, including the method in which said classes of upstream tone usage comprise, in descending order of priority, annex J type, annex B type, and annex A type (ITU-T Recommendation G.992.3, pages 257-261).
30. With respect to claim 12, the combination of Mueller, Johnson and ITU-T Recommendation G.992.3 teaches the invention described in claim 11, including the method in which the probing mode of operation is a diagnostic mode (ITU-T Recommendation G.992.3, page 144).
31. Claims 13, 14, 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller in view of Johnson and further in view of Khadavi (U.S. 7,027,405).

32. With respect to claims 13 and 31, Mueller teaches the invention described in claims 11 and 24, including a method for selecting a mode of operation for at least two modems that communicate via a communications network, the method comprising: (a) performing a handshake procedure in order to determine a set of possible modes of operation supported by the modems (Mueller, col. 2, lines 23-25).

Mueller does not explicitly teach selecting from a number of favorable modes of operation.

However, Johnson teaches (b) deriving, from the set of possible modes of operation, a set of favorable modes of operation (Johnson, col. 5, lines 4-17); and, (c) in case there exist two or more favorable modes of operation, performing a probing-based selection that comprises evaluating respective performances of said favorable modes of operation and selecting the favorable mode of operation with the best performance as a resultant mode of operation (Johnson, col. 5, lines 18-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mueller in view of Johnson in order to enable selecting from a number of favorable modes of operation. One would be motivated to do so in order to provide a communication path selection method which is more dynamic and adaptive to changing needs and conditions.

The combination of Mueller and Johnson does not explicitly teach the use of signal-to-noise ratio.

However, Khadavi teaches the method in which said probing-based selection comprises measuring line conditions, in particular the signal to noise ratio, for the probing mode of operation (Khadavi, col. 4, lines 2-6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Mueller and Johnson in view of Khadavi in order to enable the use of signal-to-noise ratio. One would be motivated to do so in order to predict a local loop's capability to support xDSL services across an entire range of frequencies over which this technology can operate.

33. With respect to claim 14, the combination of Mueller, Johnson and Khadavi teaches the invention described in claim 1, including the method in which said probing-based selection comprises estimating line conditions, in particular the signal to noise ratio (Khadavi, col. 4, lines 2-6).
34. With respect to claim 26, the combination of Mueller, Johnson and Khadavi teaches the invention described in claim 24, including the modem unit in which said modem unit is either a central xDSL modem or a remote xDSL modem (Khadavi, col. 4, line 52 – col. 5, line 10).
35. Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller in view of Johnson and further in view of Stone et al. (U.S. 7,391,780).

36. With respect to claim 15, Mueller teaches the invention described in claim 1, including a method for selecting a mode of operation for at least two modems that communicate via a communications network, the method comprising: (a) performing a handshake procedure in order to determine a set of possible modes of operation supported by the modems (Mueller, col. 2, lines 23-25).

Mueller does not explicitly teach selecting from a number of favorable modes of operation.

However, Johnson teaches (b) deriving, from the set of possible modes of operation, a set of favorable modes of operation (Johnson, col. 5, lines 4-17); and, (c) in case there exist two or more favorable modes of operation, performing a probing-based selection that comprises evaluating respective performances of said favorable modes of operation and selecting the favorable mode of operation with the best performance as a resultant mode of operation (Johnson, col. 5, lines 18-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mueller in view of Johnson in order to enable selecting from a number of favorable modes of operation. One would be motivated to do so in order to provide a communication path selection method which is more dynamic and adaptive to changing needs and conditions.

The combination of Mueller and Johnson does not explicitly teach determining an upstream bit rate and a downstream bit rate.

However, Stone teaches the method in which said probing-based selection comprises determining, for each of the favorable modes of operation, at least one of an upstream bit rate and a downstream bit rate (Stone, col. 4, lines 16-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Mueller and Johnson in view of Stone in order to enable determining an upstream bit rate and a downstream bit rate. One would be motivated to do so in order to utilize statistical bandwidth information to enable more accurate predictions to occur.

37. With respect to claim 18, the combination of Mueller, Johnson and Stone teaches the invention described in claim 15, including the method in which for each of the favorable modes of operation, a performance index PI is determined using the following formula:

$$PI = \alpha_d \cdot (DS - DS_{\min}) + \alpha_u \cdot (US - US_{\min}),$$

in which DS and US denote the downstream and the upstream bit rate (Stone, col. 11, lines 42-57), DS_{\min} and US_{\min} denote the minimum downstream and the minimum upstream bit rate, and in which α_d and α_u denote arbitrary parameters (Stone, col. 4, lines 16-30).

38. Claims 16, 17, 19-21 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller in view of Johnson and further in view of Gerszberg et al. (U.S. 6,396,531).

39. With respect to claims 16 and 32, Mueller teaches the invention described in claims 1 and 24, including a method for selecting a mode of operation for at least two modems that communicate via a communications network, the method comprising: (a) performing a handshake procedure in order to determine a set of possible modes of operation supported by the modems (Mueller, col. 2, lines 23-25) and said probing-based selection (Mueller, col. 2, lines 23-25).

Mueller does not explicitly teach selecting from a number of favorable modes of operation.

However, Johnson teaches (b) deriving, from the set of possible modes of operation, a set of favorable modes of operation (Johnson, col. 5, lines 4-17); and, (c) in case there exist two or more favorable modes of operation, performing a probing-based selection that comprises evaluating respective performances of said favorable modes of operation and selecting the favorable mode of operation with the best performance as a resultant mode of operation (Johnson, col. 5, lines 18-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mueller in view of Johnson in order to enable selecting from a number of favorable modes of operation. One would be motivated to do so in order to provide a

communication path selection method which is more dynamic and adaptive to changing needs and conditions.

The combination of Mueller and Johnson does not explicitly teach the use of a performance index.

However, Gerszberg teaches the method that comprises determining, for each of the favorable modes of operation, a performance index indicating the performance of the respective mode of operation (Gerszberg, col. 20, lines 13-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Mueller and Jonson in view of Gerszberg in order to enable the use of a performance index. One would be motivated to do so in order to provide an integrated device that incorporates access to all of the different services that might be available into a single access device.

40. With respect to claim 17, the combination of Mueller, Johnson and Gerszberg teaches the invention described in claim 11, including the method in which, for each one of the favorable modes of operation, a performance index indicating the performance of the respective mode of operation is derived from line conditions determined for the probing mode of operation (Gerszberg, col. 20, lines 13-16).

41. With respect to claims 19 and 33, the combination of Mueller, Johnson and Gerszberg teaches the invention described in claims 24 and 33, including the method in which the

favorable mode of operation with the highest performance index is selected as the resultant mode of operation (Gerszberg, col. 20, lines 13-16).

42. With respect to claim 20, the combination of Mueller, Johnson and Gerszberg teaches the invention described in claim 16, including the method in which, in case all the performance indices of the favorable modes of operation are equal to a maximum, a secondary performance index is determined and evaluated for each of the favorable modes of operation (Johnson, col. 5, lines 18-35).
43. With respect to claims 21 and 34, the combination of Mueller, Johnson and Gerszberg teaches the invention described in claims 11 and 24, including the method in which the probing-based selection comprises deciding whether the modems have to be re-initialized before data transmission is started (Gerszberg, col. 8, lines 49-63).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Baturay whose telephone number is (571) 272-3981. The examiner can normally be reached at 7:30am - 5pm, Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on (571) 272-6798. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia Baturay
September 26, 2009

/Jeffrey Pwu/

Supervisory Patent Examiner, Art Unit 2446